UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/666,647	09/19/2003	Young Dae Lee	2101-3053	8504

35884 7590 12/21/2006

LEE, HONG, DEGERMAN, KANG & SCHMADEKA
801 S. FIGUEROA STREET
12TH FLOOR
LOS ANGELES, CA 90017

EXAMINER	
HOANG, HIEU T	
ART UNIT	**PAPER NUMBER**
2196	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/21/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/666,647	LEE ET AL.	
	Examiner	Art Unit	
	Hieu T. Hoang	2196	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09-19-03*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-78* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-78* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☒ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *3-22-04 and 8-28-06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-6, 9, 10, 13, 16-23, 25, 26, 28, 30, 35, 37, 42-44, 49-54, 59, 63, 65-67, 69-75, 77, and 78 are rejected under 35 U.S.C. 102(e) as being anticipated by Leung et al. (US 2003/0087653, hereafter Leung).

3. For claim 1, Leung discloses a method for providing multicast services in a radio communication system (abstract), the method comprising:

- performing Internet protocol header compression to form header compressed data (figure 4 step t3, [0065] lines 9-14, [0068] lines 5-6); and
- transmitting the header compressed data in a point-to-point manner and in a point-to-multipoint manner depending upon a threshold value, to one or more users of the radio communication system ([0111] lines 9-14, and [0112] lines 1-7, a dedicated channel is a unicast or a point-to-point channel, a broadcast channel BC is a multicast or point-to-multipoint channel as in fig. 15B).

4. For claim 18, Leung discloses method of receiving data of a multicast service in a radio communication system (abstract), the method comprising:

- receiving header compressed data ([0068] lines 1-6) in a point-to-point manner and in a point-to-multipoint manner depending upon a threshold value ([0111] lines 9-14, and [0112] lines 1-7, a dedicated channel is a unicast or a point-to-point channel, a broadcast channel BC is a multicast or point-to-multipoint channel as in fig. 15B);
- decompressing the received header compressed data to allow a user to access the multicast service ([0068] lines 9-12).

5. For claim 28, Leung discloses in a radio communication system for providing and receiving data of a multicast service (abstract), a radio network controller comprising:

- a header compressing portion that performs Internet protocol header compression (figure 4 step t3, [0065] lines 9-14, [0068] lines 2-4, robust header compression ROHC compresses IP data headers); and
- a transmitting portion that transmits the header compressed data in point-to-point manner and in a point-to-multipoint manner depending upon a threshold value, to one or more users of the radio communication system ([0111] lines 9-14, and [0112] lines 1-7, a dedicated channel is a unicast or a point-to-point channel, a broadcast channel BC is a multicast or point-to-multipoint channel as in fig. 15B);

6. For claim 35, Leung discloses in a radio communication system for providing and receiving data of a multicast service (abstract), a user equipment comprising:

- a receiving portion, that receives in a point-to-point manner and in a point-to-multipoint manner, Internet protocol header compressed data ([0068] lines 1-5, a mobile station MS receives header compressed data, [0111] lines 9-14 and [0112] lines 1-7, a dedicated channel is a unicast or a point-to-point channel, a broadcast channel BC is a multicast or point-to-multipoint channel as in fig. 15B);
- a header decompressing portion operatively connected with the receiving portion, the header decompressing portion decompressing the header compressed data to access the multicast service ([0068] lines 9-12).

7. For claim 42, Leung discloses a method for providing multicast services in a radio communication system (abstract), the method comprising:

- performing Internet protocol header compression to form header compressed data (figure 4 step t3, [0065] lines 9-14, [0068] lines 5-6);
- transmitting the header compressed data in a point-to-multipoint manner according to a type of multicast service to one or more users in the radio communication system ([0112] lines 1-7, a broadcast channel BC is a multicast or point-to-multipoint channel as in fig. 15B).

8. For claim 43, Leung discloses a method of providing a point-to-multipoint service to a plurality of terminals in a wireless communication system (abstract), the method comprising:

- performing compression of at least part of the at least one header to form a compressed header of the point-to-multipoint service in a one header compression module of a plurality of header compression modules in a network communicating with the plurality of terminals (figure 4 step t3, [0065] lines 9-14, [0068] lines 5-6);
- transmitting the compressed header of the point-to-multipoint service to at least one terminal of the wireless communication system, the number of the plurality of terminals is greater than the number of header compression modules in the network ([0112] lines 1-7, a broadcast channel BC is a multicast or point-to-multipoint channel as in fig. 15B, [0068] lines 5-9, figure 2, only one PDSN with a ROHC robust header compression module associated with it, the number of users is definitely larger than the number of header compression modules).

9. For claim 51, Leung discloses a method of providing Internet protocol header information to a plurality of terminals in a wireless communication system (abstract), the method comprising:

- performing header compression of Internet protocol header information to form compressed header data (figure 4 step t3, [0065] lines 9-14, [0068] lines 5-6); and

- transmitting the compressed header data to at least one terminal of the communication system in one of a point-to-point manner and a point-to-multipoint manner depending upon a threshold value ([0111] lines 9-14, and [0112] lines 1-7, a dedicated channel is a unicast or a point-to-point channel, a broadcast channel BC is a multicast or point-to-multipoint channel as in fig. 15B).

10. For claim 59, Leung discloses a method of providing internet protocol header information to a plurality of terminals in a wireless communication system (abstract), the method comprising:

- performing compression of internet protocol header information to form compressed header data and providing the compressed header data on a common logical channel (figure 4 step t3, [0065] lines 9-14, [0068] lines 5-6; [0049] lines 1-4, a high speed broadcast service (HSBS) channel is a common logical channel);
- transmitting the compressed header data to a plurality of terminals in a point-to-multipoint manner wherein the compressed header data is mapped to a common physical channel accessible by a plurality of terminals ([0112] lines 1-7, a broadcast channel BC is a multicast or point-to-multipoint channel as in fig. 15B; [0049] lines 7-10, a broadcast channel is a common physical channel); and
- receiving and decompressing the compressed header data on the common physical channel at the plurality of terminals ([0068] lines 9-12).

11. For claim 65, Leung discloses a method of providing internet protocol header information in a wireless communication system (abstract), the method comprising:

- providing internet protocol header information from an internet protocol module to a header compression module associated with one of serving network control equipment and controlling network control equipment ([0068] lines 5-6, IP packet headers are compress at packet data service node PDSN using robust header compression protocol ROHC, the PDSN is read as either serving network control equipment or controlling network control equipment);
- performing compression of the internet protocol header information in the header compression module to form compressed header data (figure 4 step t3, [0065] lines 9-14, [0068] lines 5-6); and
- transmitting the compressed header data to at least one terminal of the communication system in one of a point-to-point manner and a point-to-multipoint manner depending upon a threshold value and the compressed header data is provided to a plurality of terminals when the data is transmitted in a point-to-multipoint manner ([0111] lines 9-14, and [0112] lines 1-7, a dedicated channel is a unicast or a point-to-point channel, a broadcast channel BC is a multicast or point-to-multipoint channel as in fig. 15B).

12. For claim 71, Leung discloses a wireless communication system for providing internet protocol header information to a plurality of terminals (abstract), the wireless communication system comprising:

- a header compression module adapted to receive internet protocol header information from an internet protocol module and compress the internet protocol header information to form compressed header data (figure 4 step t3, [0065] lines 9-14, [0068] lines 5-6);
- a transmitting module adapted to transmit the compressed header data to at least one user of the communication system in one of a point-to-point manner and a point-to-multipoint manner depending upon a threshold value ([0111] lines 9-14, and [0112] lines 1-7, a dedicated channel is a unicast or a point-to-point channel, a broadcast channel BC is a multicast or point-to-multipoint channel as in fig. 15B); and a receiving module adapted to receive and decompress the compressed header data ([0068] lines 9-12).

13. For claims 2, 66, and 74, Leung further discloses the point-to-point manner is employed if a total number of users within a cell is below the threshold value (fig. 16 steps 904, 910, and 912).

14. For claims 3, 67, and 75, Leung further discloses the point-to-multipoint manner is employed if a total number of users within a cell is at or above the threshold value (fig. 16 steps 904 and 906).

15. For claims 4, 30, and 37, Leung further discloses the Internet protocol header compression is respectively performed for each type of multicasting service to be provided (figure 4 step t3, [0065] lines 9-14, [0068] lines 5-6).

16. For claims 5 and 19, Leung further discloses the point-to-point manner is transmitting data from a single sending point to a single receiving point (fig. 15A, each dedicated channel links between one BSC and 1 MS).

17. For claims 6 and 20, Leung further discloses the point-to-point manner is based upon a total number of users within a cell of the radio communication system (fig. 16 steps 904, 910, and 912).

18. For claim 21, Leung further discloses the transmitting by point-to-point manner is via a dedicated channel ([0111] lines 9-14).

19. For claims 9, 22, 53, and 72, Leung further discloses the point-to-multipoint manner is transmitting data from a single sending point to multiple receiving points ([0111] lines 1-3).

20. For claims 10 and 23, Leung further discloses the point-to-multipoint manner is based upon a total number of users within a cell of the radio communication system (fig. 16 steps 904 and 906).

21. For claims 13, Leung further discloses the header compression is performed at a central location for each type of multicast service ([0033] lines 3-6 and [0068] lines 5-6, a PDSN is read as a central location).

22. For claims 16 and 25, Leung further discloses a multicast service is a service that is provided to a specified plurality of users ([0111] lines 1-5, a group call is a multicast application to members of a group).

23. For claim 69, further discloses the transmission of the compressed header data to the at least one terminal comprises a multicast service ([0111] lines 1-5).

24. For claims 17, 26, 70, and 78, Leung further discloses the multicast service is multimedia broadcast/multicast service (MBMS) ([0051] lines 1-4, HSBS is a multicast service by the term "broadcast", also see figure 2 video audio content to be transmitted over a broadcast service).

25. For claim 44, Leung further discloses the header is an Internet protocol header ([0068] lines 1-4).

26. For claim 46, Leung further discloses the compressed header of the point-to-multipoint service is transmitted to the plurality of terminals in one of a point-to-point and a point-to-multipoint manner ([0111] lines 9-14, and [0112] lines 1-7, a dedicated channel is a unicast or a point-to-point channel, a broadcast channel BC is a multicast or point-to-multipoint channel as in fig. 15B).

27. For claim 47, Leung further discloses the selection of one of the point-to-point manner and the point-to-multipoint manner is determined using a predetermined requirement associated with a number of terminals communicating with the network ([0111] lines 9-14, and [0112] lines 1-7, a dedicated channel is a unicast or a point-to-point channel, a broadcast channel BC is a multicast or point-to-multipoint channel as in fig. 15B).

28. For claim 49, Leung further discloses the header compression module is associated with a packet data convergence protocol layer of the network ([0068] lines 5-9, ROHC is read as packet data convergence protocol, and PDSN is read as a radio network controller that carries out header compression).

29. For claim 50, Leung further discloses the header compression module is associated with a controlling radio network controller ([0068] lines 5-9, packet data

service node PDSN is read as a radio network controller that carries out header compression).

30. For claim 52, Leung further discloses header compression is performed once for the data transmitted to a plurality of terminals when the data is transmitted in a point-to-multipoint manner ([0068] lines 5-9, the PDSN provides header compression once using ROHC protocol).

31. For claim 54, Leung further discloses the threshold value is associated with a number of terminals ([0111] lines 9-14, and [0112] lines 1-7).

32. For claim 63, Leung further discloses the compressed header data is transmitted to the plurality of terminals in the point-to-multipoint manner over a wireless path (figure 1, a wireless network, abstract).

33. For claim 73, Leung further discloses the header compression module is associated with one of serving network control equipment and controlling network control equipment ([0068] lines 5-9, packet data service node PDSN is read as a network controller equipment that carries out header compression).

34. For claim 77, Leung further discloses the header compression module is part of a controlling radio network controller ([0068] lines 5-9, packet data service node PDSN is read as a network controller equipment that carries out header compression).

Claim Rejections - 35 USC § 103

35. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

36. Claims 7, 8, 11, 12, 14, 15, 24, 27, 29, 31-34, 36, 38-41, 45, 48, 55-58, 60-62, 64, 68, and 76 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leung in view of Applicant Admitted Prior Art (background of the invention in the application, hereafter AAPA).

37. For claims 29, 57, 61, 68, and 76, Leung does not disclose the header compressing portion is a packet data convergence protocol (PDCP) entity.

However, AAPA discloses the header compressing portion is a packet data convergence protocol (PDCP) entity (figure 5, PDCP entity compresses headers at SRNCs).

Therefore, it would have been obvious for one skilled in the art at the time of the invention to combine the teachings of Leung with the teachings of AAPA to conserve

the transmission resources by using individual dedicated channels rather than using the broadcast channel (or vice versa) (Leung [0115] lines 8-14).

38. For claims 7, 31 and 38, Leung does not specifically disclose the point-to-point manner is performed in a serving radio network controller (SRNC).

However, AAPA discloses the point-to-point manner is performed in a serving radio network controller (SRNC) (fig. 5 showing multiple unicast links from SRNCs to User Equipments UE).

Therefore, it would have been obvious for one skilled in the art at the time of the invention to combine the teachings of Leung with the teachings of AAPA to conserve the transmission resources by using individual dedicated channels rather than using the broadcast channel (or vice versa) (Leung [0115] lines 8-14).

39. For claims 8 and 39, Leung further discloses the transmitting by point-to-point manner is via a dedicated channel ([0111] lines 9-14).

40. For claims 11, 33, 40, 58, and 62, Leung does not disclose the point-to-multipoint manner is performed in a controlling radio network controller (CRNC).

However, AAPA discloses the point-to-multipoint manner is performed in a controlling radio network controller (CRNC) (fig. 5, CRNC controls multicast messages).

Therefore, it would have been obvious for one skilled in the art at the time of the invention to combine the teachings of Leung with the teachings of AAPA to conserve

the transmission resources by using individual dedicated channels rather than using the broadcast channel (or vice versa) (Leung [0115] lines 8-14).

41. For claims 12, 24, 41, 45, and 55, Leung further discloses the transmitting by point-to-multipoint manner is via a common channel ([0009] lines 13-15).

42. For claim 14, Leung discloses the central location is a robust header compression protocol entity ([0068] lines 4-12, a ROHC). However, Leung does not disclose the central location is a packet data convergence protocol (PDCP) entity.

On the other hand, AAPA discloses that PDCP is a well-known header compression protocol (figure 5, PDCP entities).

Therefore, it would have been obvious for one skilled in the art at the time of the invention to use a PDCP in order to compress packet headers to improve data transmission efficiency because header portion occupies a large part of a packet of which transmission requires much bandwidth and network resources (AAPA page 9 lines 11-15).

43. For claim 15, Leung further discloses the PDCP entity is located within a controlling radio network controller (CRNC) ([0068] lines 1-12, ROHC is read as PDCP, and PDSN is read as CRNC).

44. For claim 27 and 36, Leung further discloses the header decompressing is performed at a robust header compression protocol entity ([0068] lines 9-12, the decompressor in the MS using ROHC to decompress the received headers). However, Leung does not explicitly disclose the header decompressing is performed at a packet data convergence protocol (PDCP) entity.

On the other hand, AAPA discloses the header decompressing is performed at a packet data convergence protocol (PDCP) entity (figure 5, PDCP decompresses received compressed headers at terminal UE).

Therefore, it would have been obvious for one skilled in the art at the time of the invention to use a PDCP to decompress packet headers after receiving packets with compressed headers in order to improve data transmission efficiency because header portion occupies a large part of a packet of which transmission requires much bandwidth and network resources (AAPA, page 9 lines 11-15).

45. For claim 32, Leung further discloses the SRNC transmits via a dedicated transport channel ([0111] lines 9-14).

46. For claim 34, Leung further discloses the CRNC transmits via a common transport channel ([0009] lines 13-15).

47. For claims 48, 56, and 60, Leung does not disclose at least part of the Internet protocol header information is not compressed.

However, AAPA discloses at least part of the Internet protocol header information is not compressed (page 6 line 25 - page 7 line 5, only the absolutely necessary information required in the header is compressed).

Therefore, it would have been obvious for one skilled in the art at the time of the invention to combine the teachings of Leung with the teachings of AAPA to compress only necessary portions of packet headers to conserve the system resources and time because compressing and decompressing of information takes time and resources.

48. For claim 64, Leung does not disclose the compression of the internet protocol header information and mapping of the compressed header data to the common physical channel is over a wired path.

However, AAPA discloses the compression of the internet protocol header information and mapping of the compressed header data to the common physical channel is over a wired path (page 6 line 25 – page 7 line 1).

Therefore, it would have been obvious for one skilled in the art at the time of the invention to combine the teachings of Leung with the teachings of AAPA to compress packet headers to conserve transmission resources over a wired path.

Conclusion

24. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- Vilander et al. US 2004/0010609. Using IP in radio access network.

25. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hieu T. Hoang whose telephone number is 571-270-1253. The examiner can normally be reached on Monday-Thursday, 8 a.m.-5 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nabil El-Hady can be reached on 571-272-3963. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

HH.

N. El Hady

NABIL M. EL-HADY
SUPERVISORY PATENT EXAMINER